

WHAT IS CLAIMED IS:

1 1. An electron optics assembly for a multi-column electron optical  
2 system comprising:  
3 a multiplicity of separate electron sources, such that there is a  
4 corresponding electron source for each column;  
5 a single accelerator structure situated below said electron sources;  
6 a multiplicity of separate scanning deflectors situated below said  
7 accelerator structure, such that there is a corresponding scanning deflector for  
8 each column; and  
9 a multiplicity of focus lenses situated below said deflectors, such that there  
10 is a corresponding focus lens for each column.

1 2. An electron optics assembly as in claim 1, wherein each of said  
2 electron sources comprises a multiplicity of independently operable field  
3 emission cathodes.

1 3. An electron optics assembly as in claim 1, wherein said accelerator  
2 structure is comprised of a set of accelerator plates, a multiplicity of accelerator  
3 apertures extending fully through said set of accelerator plates, such that there is  
4 a corresponding accelerator aperture for each column.

1 4. An electron optics assembly as in claim 1, wherein said accelerator  
2 structure is comprised of a single piece of resistive ceramic material, a multiplicity

3 of accelerator apertures extending fully through said single piece of resistive  
4 ceramic material, such that there is a corresponding accelerator aperture for  
5 each column.

1 5. An electron optics assembly as in claim 1, further comprising a  
2 multiplicity of alignment deflectors, for precisely steering the electron beams  
3 down the centers of corresponding columns, situated between said electron  
4 sources and said accelerator structure, such that there is a corresponding  
5 alignment deflector for each column.

1 6. An electron optics assembly as in claim 1, wherein said multiplicity  
2 of focus lenses are formed in a single lens plate.